

DOCUMENT RESUME

ED 221 761

CE 034 182

AUTHOR Hill, Pamela
TITLE Lubrication System. Introduction: Things for You to Know. Student Manual. Small Engine Repair Series. First Edition.
INSTITUTION East Texas State Univ., Commerce. Occupational Curriculum Lab.
SPONS AGENCY Texas Education Agency, Austin. Dept. of Occupational Education and Technology.
PUB DATE 81
NOTE 77p.; For related documents see ED 146 392 and CE 034 181-188.
AVAILABLE FROM Occupational Curriculum Laboratory, East Texas State University, Commerce, TX 75428.
EDRS PRICE MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS Check Lists; *Disabilities; *Engines; Industrial Arts; Instructional Materials; Job Skills; *Lubricants; Rating Scales; *Repair; *Safety; Secondary Education; Trade and Industrial Education
IDENTIFIERS *Lubrication Systems; *Small Engine Mechanics

ABSTRACT

This student manual introducing the lubrication system is the first of three in an instructional package on the lubrication system in the Small Engine Repair Series for handicapped students. The stated purpose of the booklet is to help students learn about the lubrication system and safe and good work habits. Informative material and diagrams are provided on the lubrication system, purpose of lubrication, functions of a lubricant, types and grades of oil, types of lubrication systems, functions of system parts, crankcase breather, safety rules, and good work habits. Review questions follow brief sections of information. Two rating scales and charts are included for evaluation of student progress. (YLB)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED221761

CE 034182

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

- ☒ This document has been reproduced as
received from the person or organization
originating it.
- ☐ Minor changes have been made to improve
reproduction quality.

• Points of view or opinions stated in this docu-
ment do not necessarily represent official NIE
position or policy.

"PERMISSION TO REPRODUCE THIS
MATERIAL IN MICROFICHE ONLY
HAS BEEN GRANTED BY

D. Bruster

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

STUDENT MANUAL-INTRODUCTION

THINGS FOR YOU TO KNOW

**Prepared by
Pamela Hill**

**MATERIALS DEVELOPED AND DISTRIBUTED BY
OCCUPATIONAL CURRICULUM LABORATORY
EAST TEXAS STATE UNIVERSITY
COMMERCE, TEXAS 75428**

**IN COOPERATION WITH
OCCUPATIONAL EDUCATION AND TECHNOLOGY
TEXAS EDUCATION AGENCY
AUSTIN, TEXAS 78701**

**FIRST EDITION
1981**

**Frances Hyatt
EDITOR**

**Bob Norsworthy
ART DIRECTOR**

**Brand names, company names, trademarks,
or other identifying symbols appearing in the text are
used to clarify and identify and do not constitute a
recommendation or endorsement.**

**OCCUPATIONAL
CURRICULUM
LABORATORY**



**ETSU: an Equal Opportunity University complies
with all federal requirements prohibiting
discriminatory activities**

WHAT YOU WILL FIND IN THIS BOOKLET

The point of this booklet	Page 1
What you will have to know and do	Page 2
What is the lubrication system?	Page 3
Why are the engine parts lubricated?	Page 7
What is the lubricant used in small engines?	Page 11
What does oil do for the engine?	Page 12
How do you find out what kinds of oil to use?	Page 15
What does grade and type of oil mean?	Page 20
How often should oil be checked and changed?	Page 27
What are the 3 types of lubrication systems?	Page 29
What are the parts of the lubrication system?	Page 34

What do the lubrication system parts do?	Page 35
What does the crankcase breather do?	Page 39
What are the parts of the crankcase breather?	Page 42
What do you know about the lubrication system?	Page 44
Safety to follow	Page 47
Good work habits to follow	Page 62
Can you follow safety and good work habits?	Page 68

THE POINT OF THIS BOOKLET

As a small engine mechanic, you may have to repair the lubrication system on small gas engines like the lawnmower. This booklet will help you learn:

- Things about the lubrication system
- Safety and good work habits to follow

As you learn about the lubrication system, you and your teacher can rate your progress on the charts on pages 44 and 45.

WHAT YOU WILL HAVE TO KNOW AND DO

Before you learn to do the repair jobs on the lubrication system you will need to know and do some things. These are:

KNOW

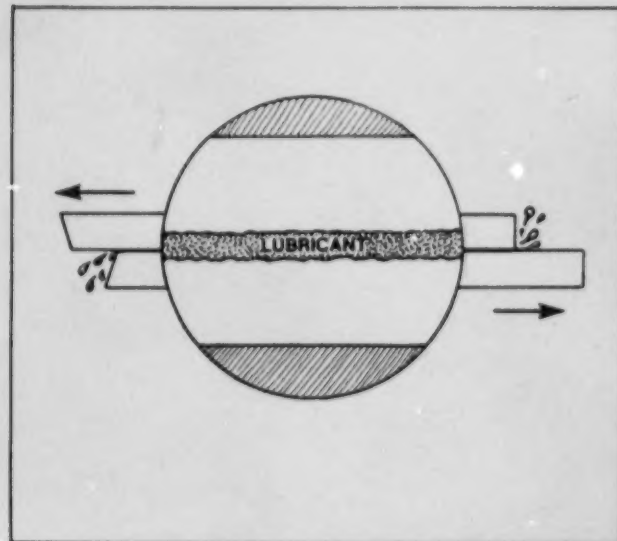
- what the lubrication system is
- why the engine parts are lubricated
- what lubricant is used in engines
- what oil does for the engine
- how to choose an oil for the engine
- what grade and type of oil means
- how often oil should be checked and changed
- 3 types of lubrication systems
- parts of the lubrication system
- what the lubrication parts do
- what the crankcase breather does
- the parts of the crankcase breather

DO

- follow safety rules
- follow good work habits

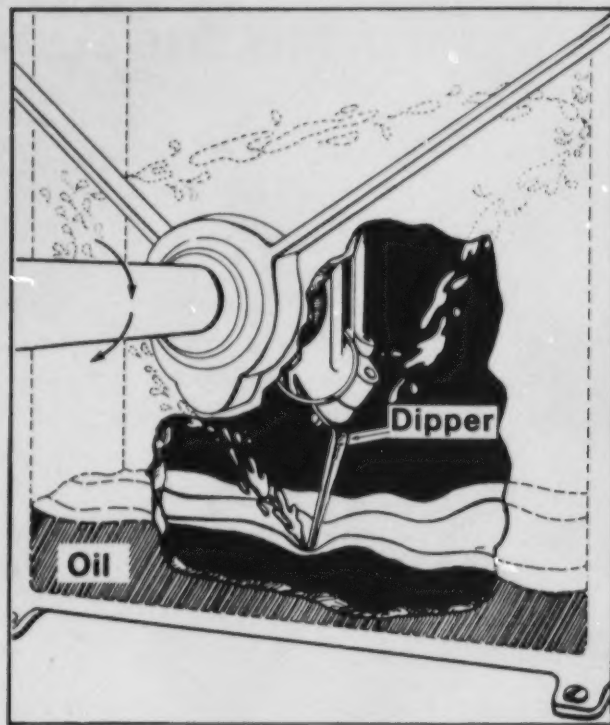
WHAT IS THE LUBRICATION SYSTEM?

1. The word "lubricate" means to make slippery and smooth
2. All of the moving parts on an engine need to have a slippery and smooth film between them.
3. A slippery and smooth film between moving engine parts is called a "lubricant."



A slippery and smooth film
between two moving engine parts

4. The lubrication system is made up of the parts of the engine that help put a lubricant, or slippery and smooth film, between the moving parts.



HOW MUCH DO YOU REMEMBER?

Circle the correct answer for each sentence.

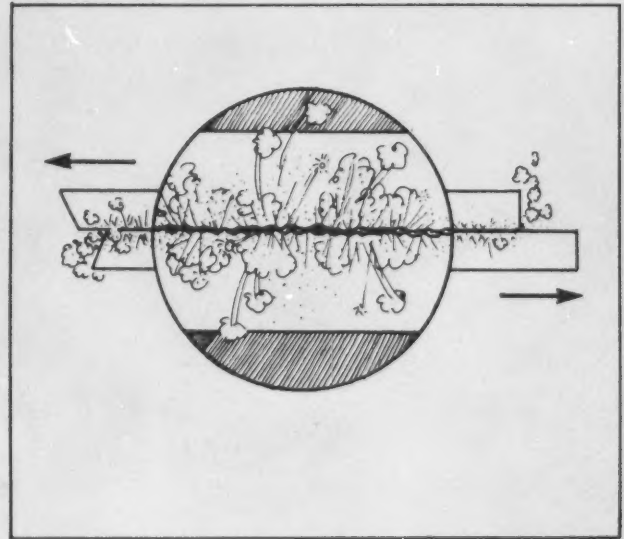
1. The word "lubricate" means to:
 - a. make slippery and smooth.
 - b. make sticky and rough.
 - c. make cold.

2. The moving parts on an engine:
 - a. do *not* need a slippery, smooth film between them.
 - b. need a slippery, smooth film between them.
 - c. do not need to have anything between them.

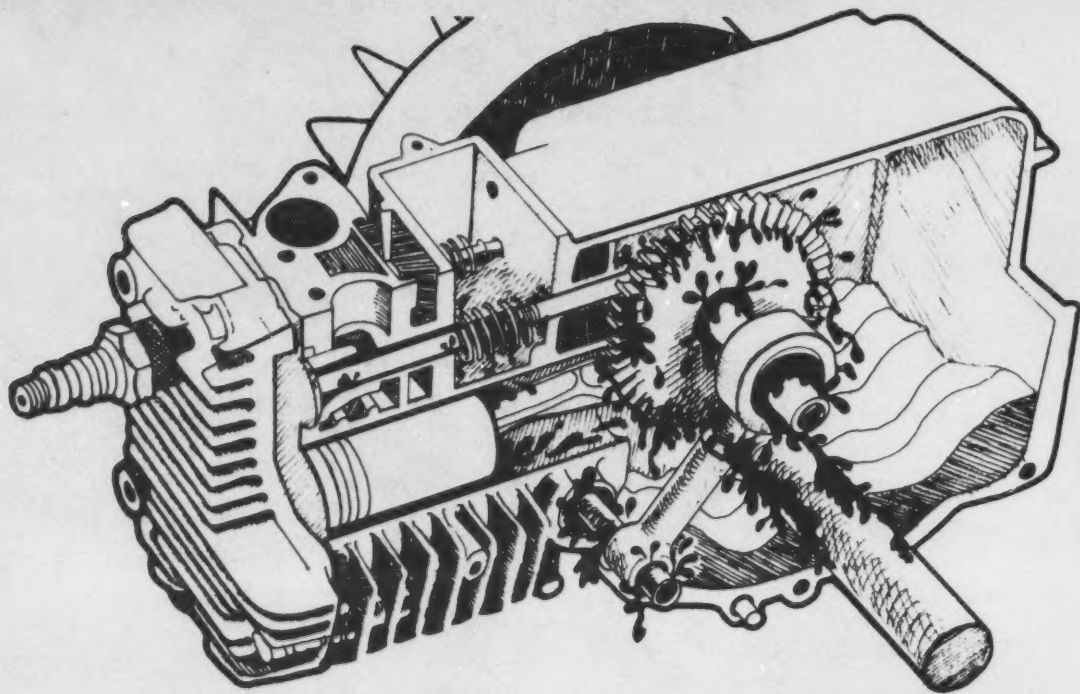
3. A slippery and smooth film between moving engine parts is called:
- a. ice.
 - b. gasoline.
 - c. lubricant.
4. The lubrication system is made up of the parts of the engine that:
- a. make inside power to start the engine.
 - b. help put a lubricant between the moving parts.
 - c. put gasoline into the engine so that it will start.

WHY ARE THE ENGINE PARTS LUBRICATED?

1. When engine parts rub against each other, they cause "friction" because they are not smooth and slippery.
2. Friction means that when moving engine parts rub against each other, they stick together and move slower.
3. Friction causes moving engine parts to get hot and wear. Friction will damage the engine.



Friction is caused when there is not a lubricant between 2 moving engine parts



4. The engine parts are lubricated so that friction and overheating is reduced and the engine will not burn up.

HOW MUCH DO YOU REMEMBER?

Circle the correct answer.

1. When engine parts rub against each other, they cause:
 - a. a fire.
 - b. the engine to stop working.
 - c. friction.

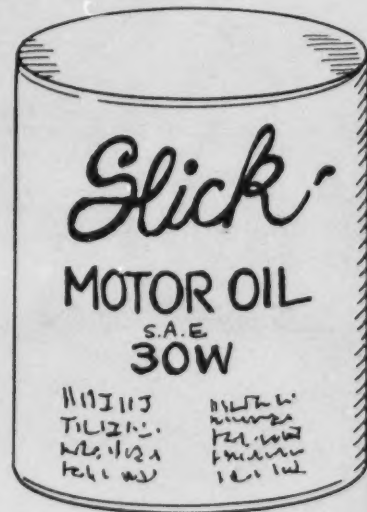
2. Friction means that moving engine parts:
 - a. stick together and move slower.
 - b. easily slide past each other.
 - c. catch on fire.

3. Friction causes moving engine parts to:
- a. cool down.
 - b. get hot and wear.
 - c. gain power.

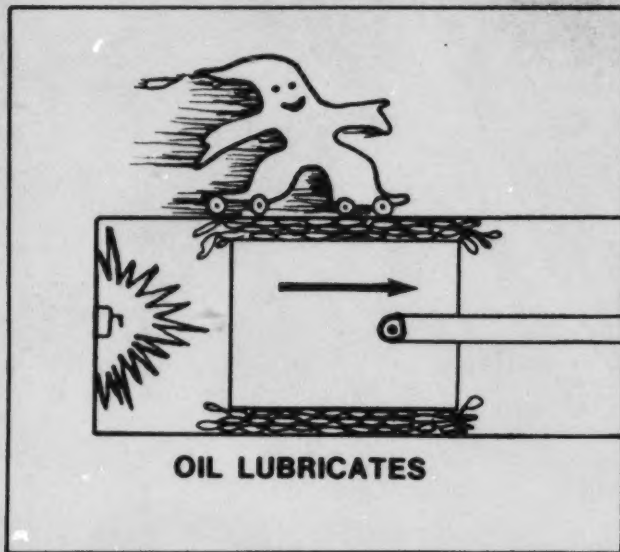
4. The engine parts are lubricated so that:
- a. a fire will start.
 - b. they can rub together and wear out.
 - c. friction and overheating is reduced.

WHAT IS THE LUBRICANT USED IN SMALL ENGINES?

Motor oil is the lubricant used in
small engines.



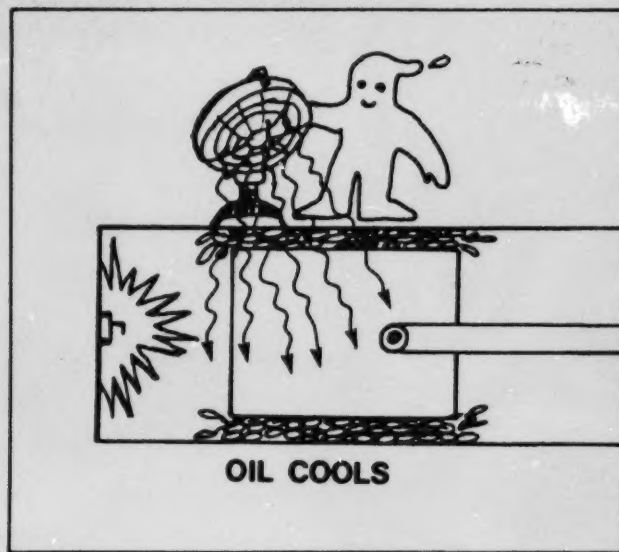
WHAT DOES OIL DO FOR THE ENGINE?



Oil is used in the engine to:

1. Give a slippery and smooth film between the moving parts so they won't rub together and wear out.

12

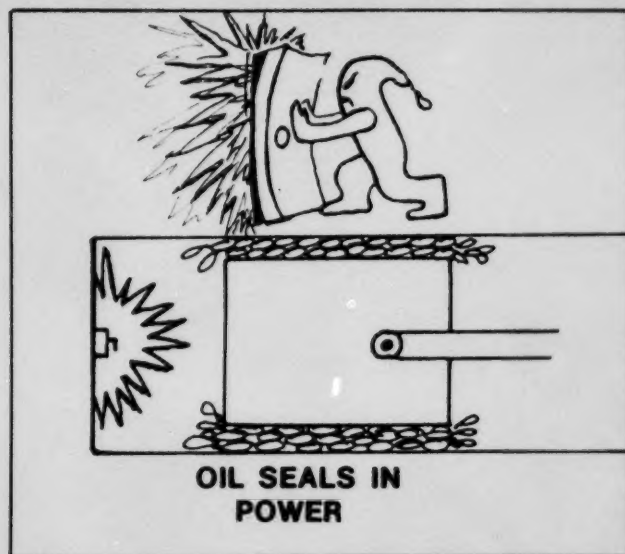


2. Cool the moving parts so they won't get hot and burn up the engine.

18



3. Clean the engine by washing the engine parts when they get dirty.



4. Give the engine more power by sealing in the power made by some of the moving parts.

HOW MUCH DO YOU REMEMBER?

Fill in the blanks with the correct word from the list below.

grease

motor oil

seals in power

burns

cools

ice

gives a slippery and smooth film

heats

cleans

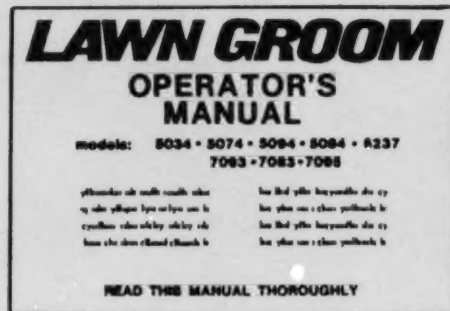
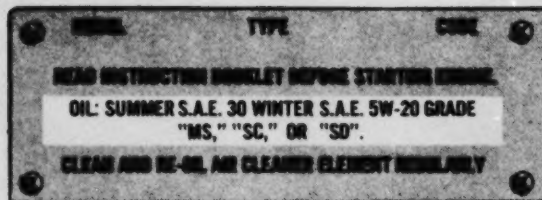
1. The lubricant used in small engines is _____
2. Name 4 things that oil does for an engine.
 - a. _____
 - b. _____
 - c. _____
 - d. _____

HOW DO YOU FIND OUT WHAT KIND OF OIL TO USE?

1. Using the right kind of oil is one of the most important decisions you will make about a small engine. The wrong kind of oil could easily damage the engine.
2. There are 3 places where you can find out what kind of oil to use in an engine. You can read the:

- Engine nameplate
- Operator's manual for the engine
- Lubrication chart

MANUFACTURER	ABOVE 40°F	ABOVE 32°F	BELOW 32°F	BELOW 0°F	BELOW -10°F
Briggs & Stratton	S.A.E. 30 OR 10W-30	5W-20 OR 10W			
Clinton	S.A.E. 30	10W			5W
Kohler	S.A.E. 30		S.A.E. 10W	5W OR 5W 20	
Wisconsin	S.A.E. 30	S.A.E. 20 OR 20W	10W		
Tecumseh	S.A.E. 30		10 W-30		



3. The engine nameplate tells you what kind of oil to use during the summer and winter. You will need to understand what the letters and numbers mean for the different kinds of oil.
4. The letters "**S.A.E.**" stand for the **Society of Automotive Engineers.**" These people give each kind of oil 2 ratings.
5. The 2 ratings for each kind of oil are:
 - Grade
 - Type

 <u>MODEL</u>	<u>TYPE</u>	<u>CODE</u> 
<u>READ INSTRUCTION BOOKLET BEFORE STARTING ENGINE.</u>		
OIL: SUMMER S.A.E. 30 WINTER S.A.E. 5W-20 GRADE "MS," "SC," OR "SD".		
<u>CLEAN AND RE-OIL AIR CLEANER ELEMENT REGULARLY</u> 		

ENGINE NAMEPLATE

HOW MUCH DO YOU REMEMBER?

Circle the correct answer or answers.

1. The 3 places where you can find out what kind of oil to use in an engine are:
 - a. can of motor oil
 - b. lubrication chart
 - c. engine sump
 - d. engine nameplate
 - e. operator's manual for the engine
2. On the engine nameplate below, circle the letters and numbers that tell you what kind of oil to use.

 MODEL	TYPE	CODE 
READ INSTRUCTION BOOKLET BEFORE STARTING ENGINE.		
OIL: SUMMER S.A.E. 30 WINTER S.A.E. 5W-20 GRADE "MS," "SC," OR "SD".		
	CLEAN AND RE-OIL AIR CLEANER ELEMENT REGULARLY 	

3. The letters S.A.E. stand for:
- a. Slick Automotive Engines
 - b. Society of Automotive Engineers
 - c. Sun Airline Engineers
4. The S.A.E. gives motor oil 2 ratings. These 2 ratings are:
- a. number
 - b. grade
 - c. color
 - d. type

WHAT DOES GRADE AND TYPE OF OIL MEAN?

1. The grade of oil means how much it weighs or how easily it will move when it is spilled.

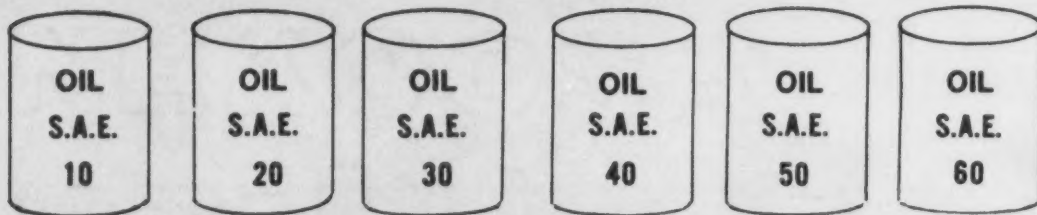


Heavy oil moves slow because it is thick.



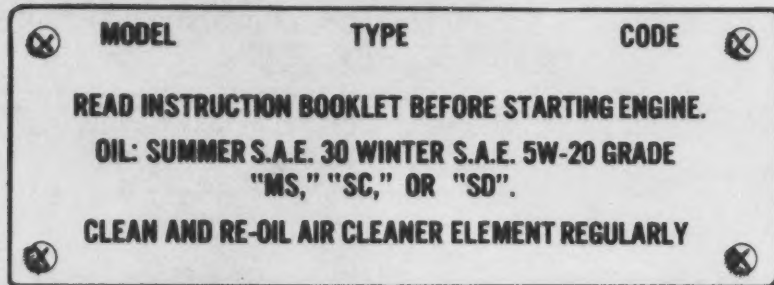
Light oil moves fast because it is thin.

2. Each grade of oil has a number. The number tells how light or heavy the oil is. These are some of the grades of oil:

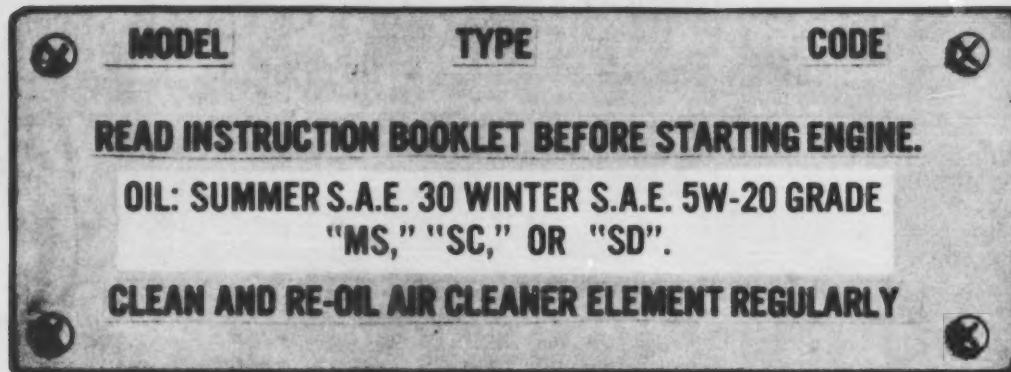


LIGHTER OIL ← → HEAVIER OIL

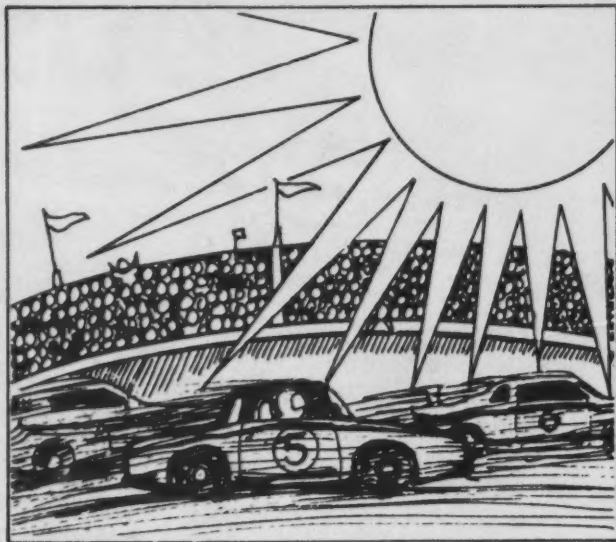
3. So, these letters and numbers on the engine nameplate mean that in the summer, use an S.A.E. 30 grade of oil, and in the winter, use an S.A.E. 5W-20 grade of oil.



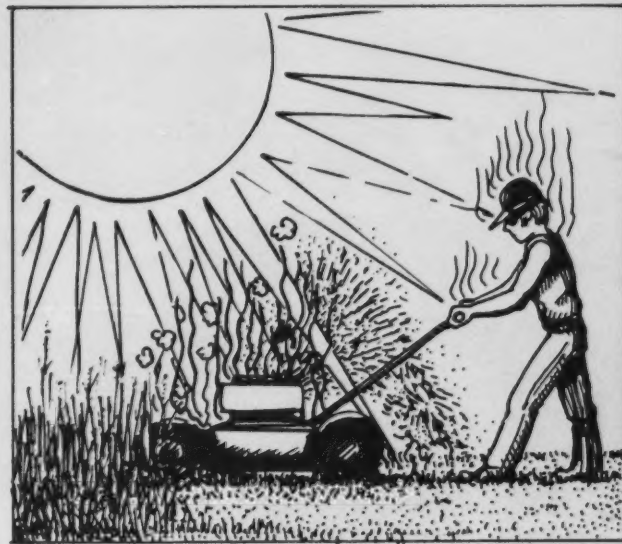
4. These letters "MS", "SC", "SD", "SA", and "SE" stand for different types of oils. Different types of oils are made for engines that do different types of work, like *hard* work, *moderate* work, or *easy* work.



5. Below are some of the different types of work that engines do. Each of these engines needs a different type of oil.



Use **SE** (**S**ervice **E**xtreme) type of oil for this engine.



Use **MS** (**M**otor **S**evere), **SC** (**S**ervice **C**ondition), or **SD** (**S**ervice **D**eluxe) type of oil for this engine.

HOW MUCH DO YOU REMEMBER?

Circle the correct answer.

1. The grade of oil means:
 - a. how good the oil is.
 - b. how much it costs.
 - c. how much it weighs or how easily it will move when it is spilled.

2. Each grade of oil is assigned a:
 - a. number.
 - b. color.
 - c. name.

30

3. On the engine nameplate below, circle the things that tell what grade of oil to use.

 MODEL	TYPE	CODE 
READ INSTRUCTION BOOKLET BEFORE STARTING ENGINE.		
OIL: SUMMER S.A.E. 30 WINTER S.A.E. 5W-20 GRADE "MS," "SC," OR "SD".		
	CLEAN AND RE-OIL AIR CLEANER ELEMENT REGULARLY 	

4. Each type of oil is assigned:
- numbers.
 - letters.
 - colors.

5. There are different types of oil to:
- a. go into different makes of engines.
 - b. do different types of work, like hard, moderate, or easy work.
 - c. there are *not* any different types of oil.
6. On the engine nameplate below, circle the things that tell what type of oil to use.

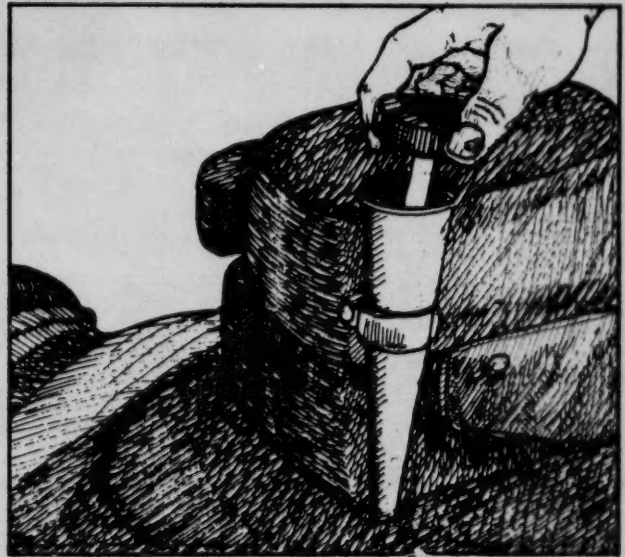
 MODEL	TYPE	CODE 
READ INSTRUCTION BOOKLET BEFORE STARTING ENGINE.		
OIL: SUMMER S.A.E. 30 WINTER S.A.E. 5W-20 GRADE "MS," "SC," OR "SD".		
CLEAN AND RE-OIL AIR CLEANER ELEMENT REGULARLY		

HOW OFTEN SHOULD THE OIL BE CHECKED AND CHANGED?

1. Every time, before you use the engine, check for:

- the oil level measure.
- dirty oil.

2. After each 25 hours of using the engine, change the oil.



HOW MUCH DO YOU REMEMBER?

Circle the correct answer.

1. How often should the oil be checked?
 - a. every time, after you use the engine.
 - b. once a month.
 - c. every time, before you use the engine.

2. You should check the oil for:
 - a. water in it.
 - b. the oil level measure and dirty oil.
 - c. dirty oil.

3. How often should the oil be changed?
 - a. after each 25 hours of using the engine.
 - b. after every time you use the engine.
 - c. after each 50 hours of using the engine.

WHAT ARE THE 3 TYPES OF LUBRICATION SYSTEMS?

Small engines need a way for oil to get onto all the moving parts inside the crankcase. There are 3 ways that oil can be circulated in the engine.

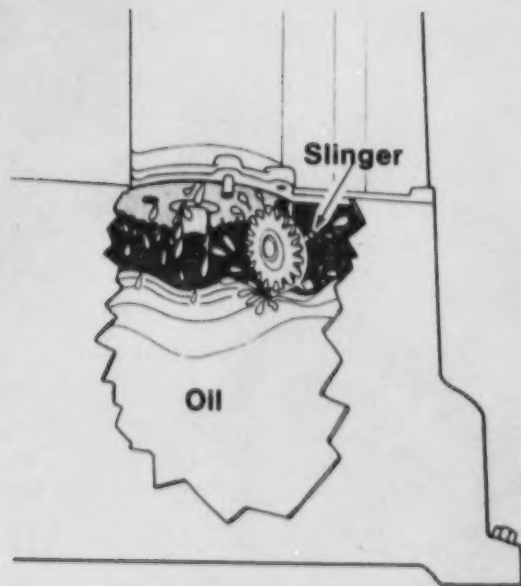
The 3 types of lubrication systems that do this are:

- 1. dipper**
- 2. slinger**
- 3. pump**

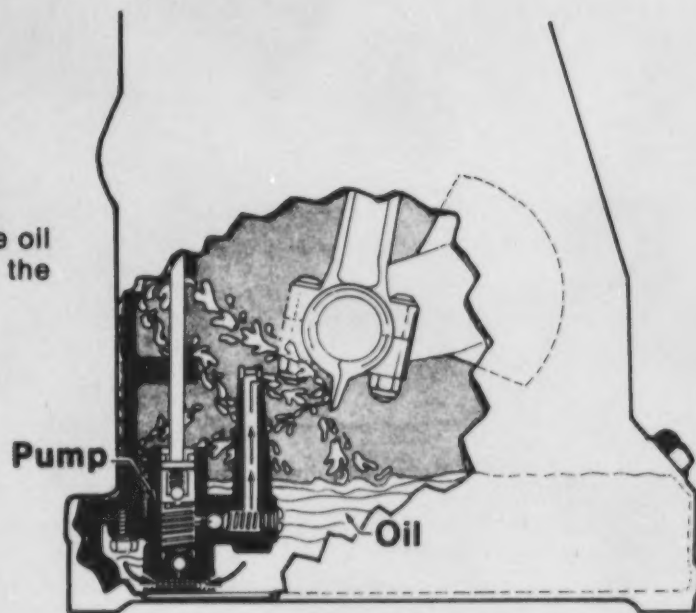
1. **Dipper type:** a dipper swings through the oil in the sump and splashes oil on the moving engine parts.



2. **Slinger type:** a slinger turns in the oil and splashes it on the moving engine parts.



3. **Pump type:** oil is pumped from the oil sump and sprayed or splashed on the moving engine parts.



HOW MUCH DO YOU REMEMBER?

Label each picture of a lubrication system using the words found below.

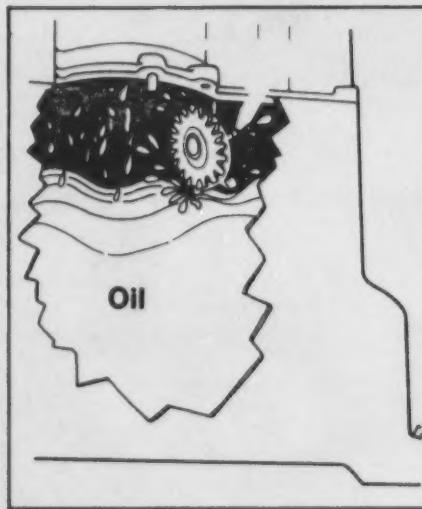
dipper

slinger

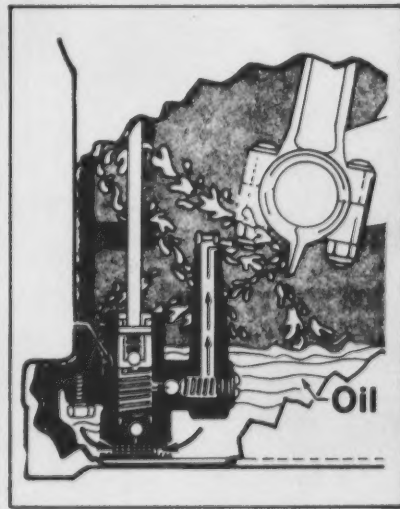
pump



1. _____

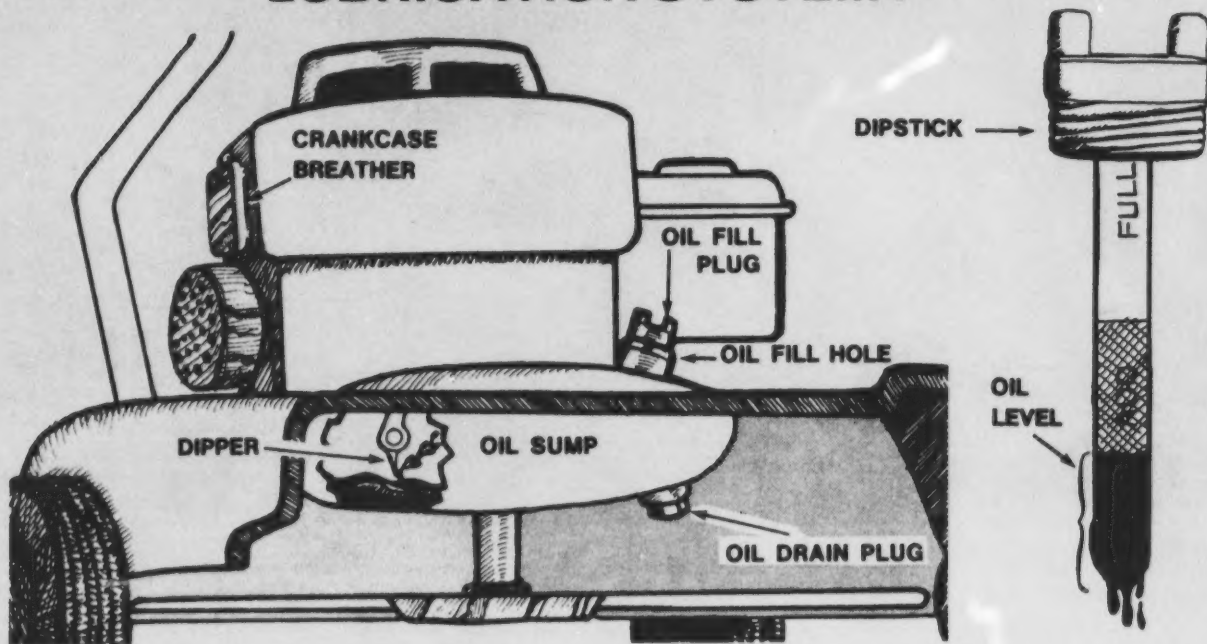


2. _____



3. _____

WHAT ARE THE PARTS OF THE LUBRICATION SYSTEM?



WHAT DO THE LUBRICATION SYSTEM PARTS DO?

Before you learn the repair jobs on the lubrication system, you will want to know the different parts and what each does.

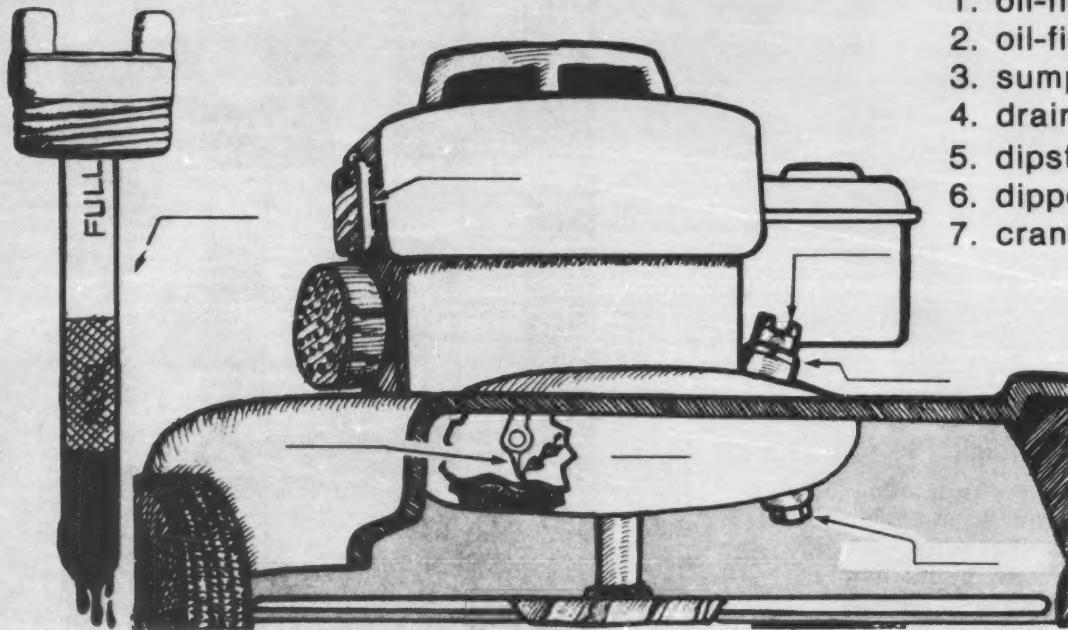
1. **Oil-fill plug**—plug that fits onto the oil-fill hole.
2. **Oil-fill hole**—hole in the crankcase for new oil to be put into the crankcase.
3. **Oil sump**—the bottom of the crankcase where the oil settles.
4. **Oil drain plug**—plug that holds the oil in the crankcase. When the plug is removed, the oil will drain out of the crankcase. On some engines, the oil drain plug is found on the sump.

5. **Dipstick**—rod for measuring the oil level. It is found on some oil-fill plugs.
6. **Dipper**—a paddle that dips into the oil and splashes it on the moving engine parts. The dipper is one way that oil is circulated in the engine.
7. **Oil**—lubricant in the engine crankcase that lubricates the moving engine parts.
8. **Crankcase breather**—part of the engine that lets it breathe so that the oil is not pushed out of the engine.

HOW MUCH DO YOU REMEMBER?

A. From the words below, write in the blanks the correct number that identifies each part of the lubrication system.

1. oil-fill plug
2. oil-fill hole
3. sump
4. drain plug
5. dipstick
6. dipper
7. crankcase breather



B. Fill in the crossword puzzle, using the words and clues below.

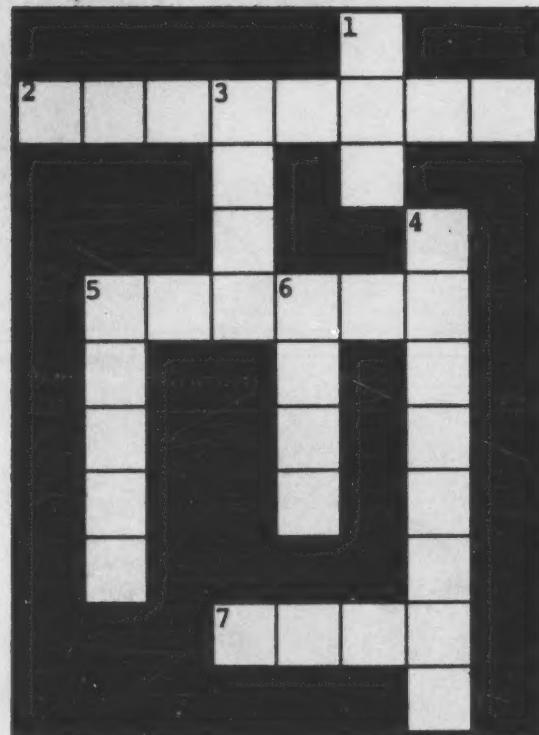
hole	drain
plug	dipper
breather	oil
dipstick	sump

ACROSS

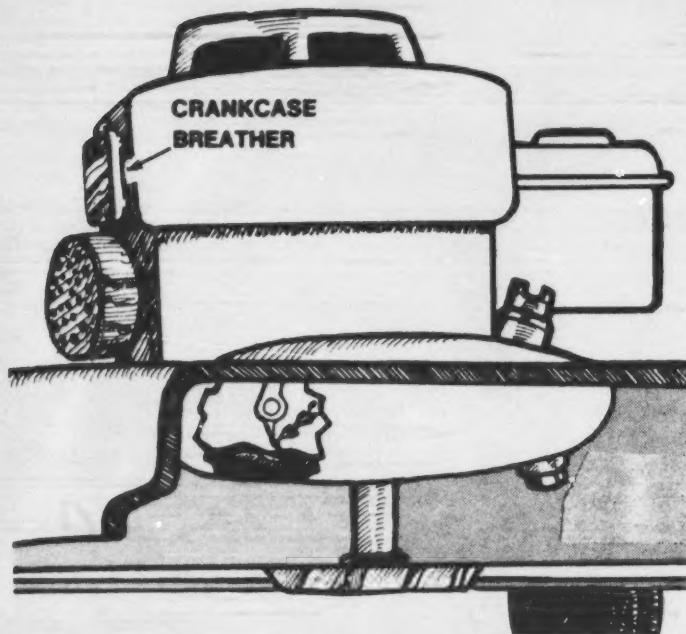
2. Rod for measuring the oil level.
5. Dips into the oil and splashes it on the engine parts.
7. A place to put new oil into the crankcase.

DOWN

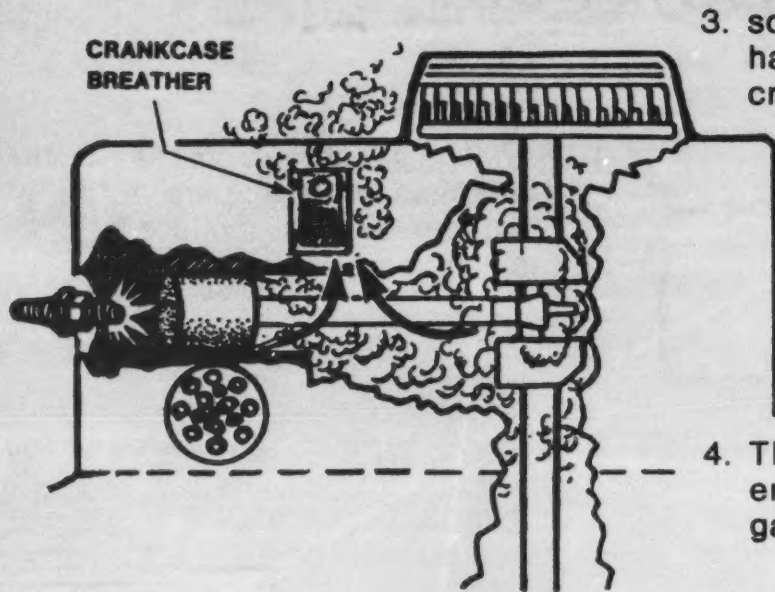
1. The lubricant for small engines.
3. Bottom of crankcase for the oil to settle.
4. Part of the engine that lets it breathe.
5. This plug on the sump holds in the oil.
6. This thing fits onto the oil-fill hole.



WHAT DOES THE CRANKCASE BREATHER DO?



1. Harmful gases are made in the crankcase when a spark of fire ignites the fuel/air mixture and as the piston moves downward.
2. If these harmful gases stay in the crankcase, then they will push oil out through the engine seals and damage the engine. . .



3. so there must be a way for the harmful gases to get out of the crankcase.

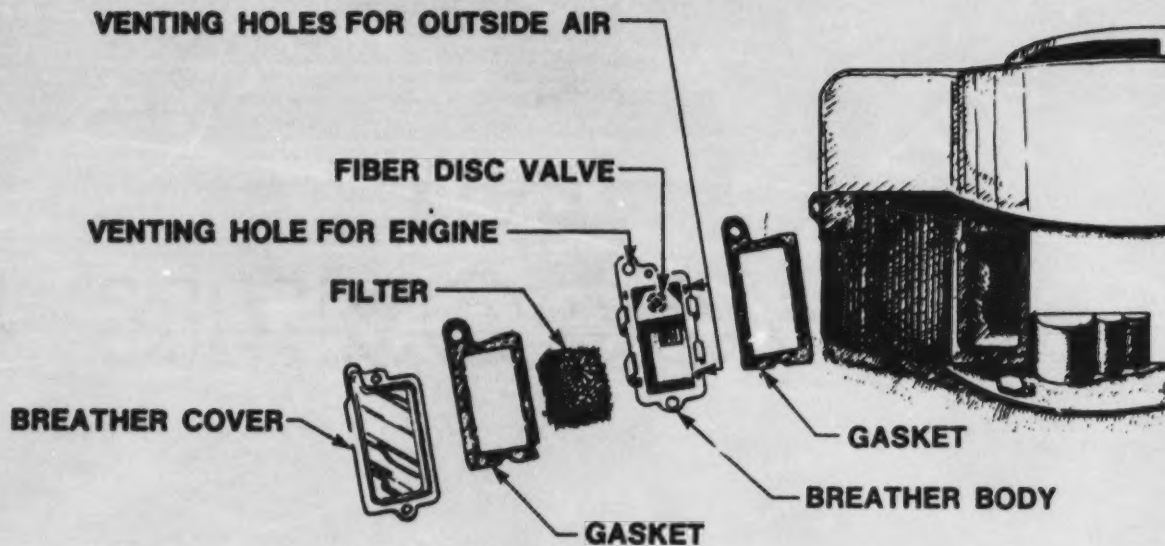
4. The crankcase breather lets the engine breathe out these harmful gases.

HOW MUCH DO YOU REMEMBER?

Place an "X" in front of each correct sentence.

- ____ 1. Harmful gases are made in the crankcase.
- ____ 2. Harmful gases in the crankcase will not hurt the engine.
- ____ 3. Harmful gases in the crankcase can push oil out through the engine seals and damage the engine.
- ____ 4. There must be a way for harmful gases to get out of the crankcase.
- ____ 6. The crankcase breather lets the engine breathe out harmful gases.
- ____ 5. The fuel tank lets the engine breathe out harmful gases.

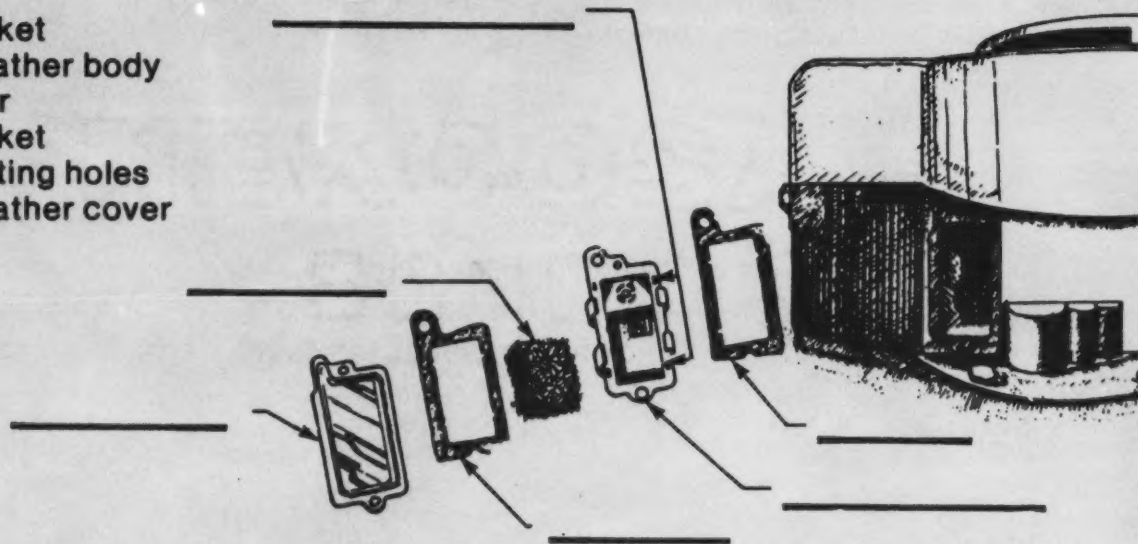
WHAT ARE THE PARTS OF THE CRANKCASE BREATHER?



HOW MUCH DO YOU REMEMBER?

From the words below, write the number of the word that identifies each part of the crankcase breather in the blanks.

1. gasket
2. breather body
3. filter
4. gasket
5. venting holes
6. breather cover



WHAT DO YOU KNOW ABOUT THE LUBRICATION SYSTEM?

Have your teacher help you rate what you have learned about the lubrication system. Use this rating scale and chart for 2 weeks and watch your progress.

RATING

MEANING

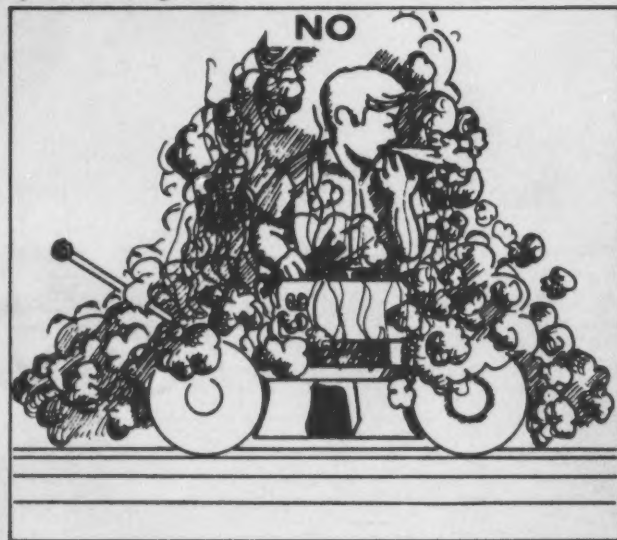
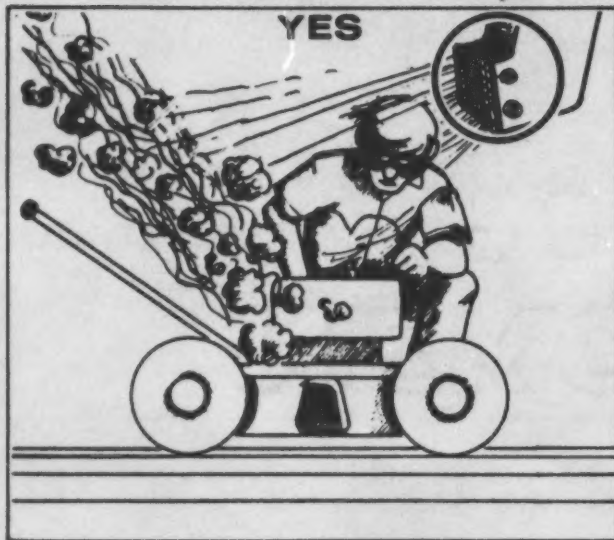
- 1** = Cannot identify the fact, part, or step
- 2** = Remembers most of the facts, parts, or steps
- 3** = Understands and explains the facts, parts, or steps

THINGS TO KNOW ABOUT THE LUBRICATION SYSTEM	DAYS									
	1	2	3	4	5	6	7	8	9	10
1. Tell what the lubrication system is										
2. Explain why engine parts are lubricated										
3. Name the lubricant used in engines										
4. Tell the 4 purposes of oil										
5. Tell how to find out the kind of oil to use in an engine										
6. Tell the meaning of grade and type of oil										

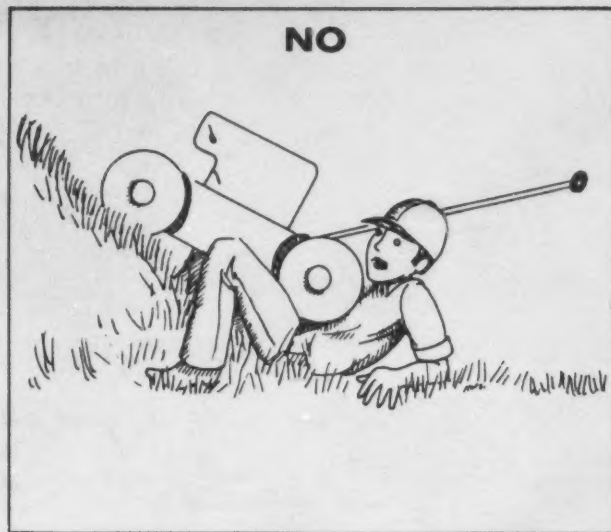
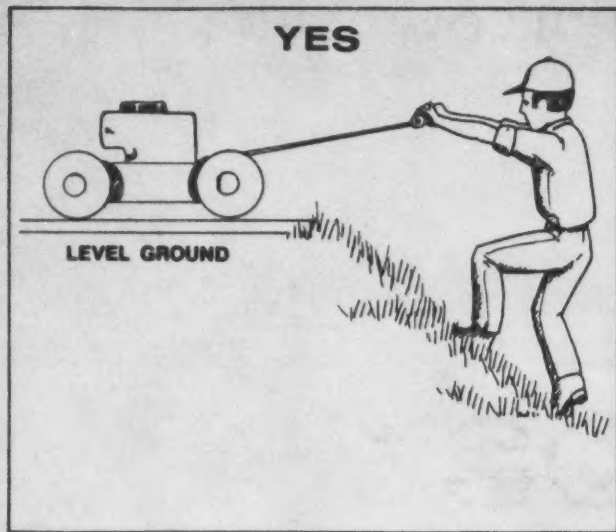
THINGS TO KNOW ABOUT THE LUBRICATION SYSTEM	DAYS									
	1	2	3	4	5	6	7	8	9	10
7. Tell how often oil should be checked and changed										
8. Identify the 3 types of lubrication systems										
9. Name and find the parts of the lubrication system										
10. Tell what the lubrication parts do										
11. Tell what the crankcase breather does										
12. Name and find the parts of the crankcase breather										

SAFETY TO FOLLOW

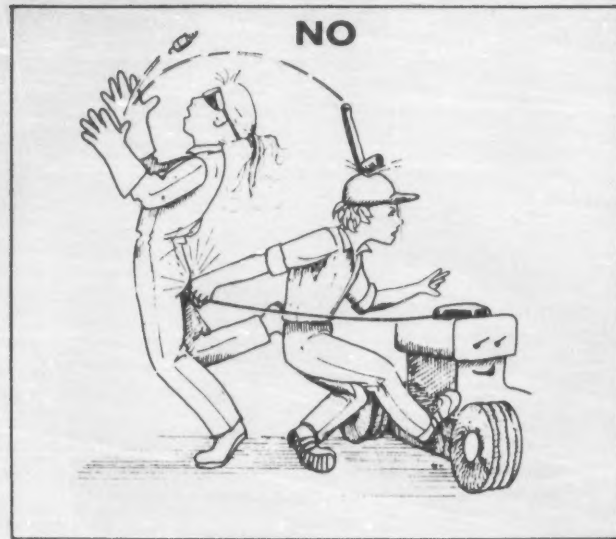
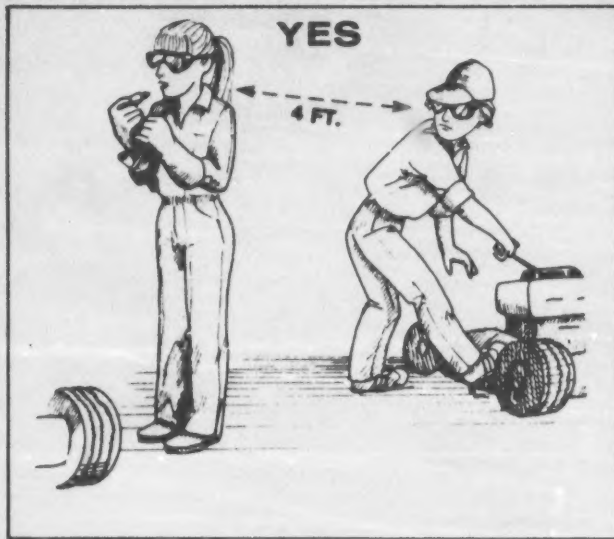
Here are some safety rules to follow when working on the lubrication system. Learn and follow them when you work on any small engine.



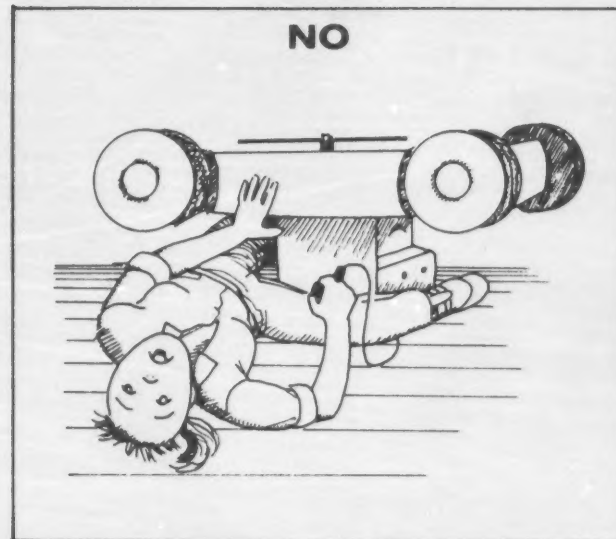
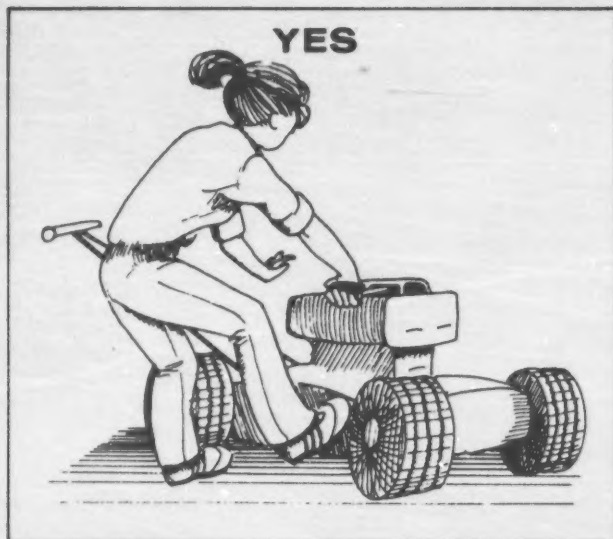
1. Before starting the engine, move it outside or to a well-ventilated area. Harmful gases from a running engine in a closed area can make you sick.



2. Before starting the engine, see that it is on level ground. The engine could easily tip over when the rope is pulled if the engine is not balanced.



3. Before pulling the starter rope, look behind you to see that nothing is in the way and there is plenty of room to pull the rope out all the way.

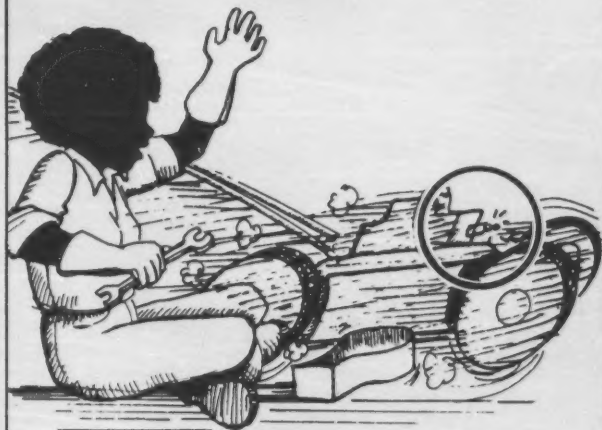


4. When cranking the engine, put one foot on the lawnmower to keep from pulling the engine onto you.

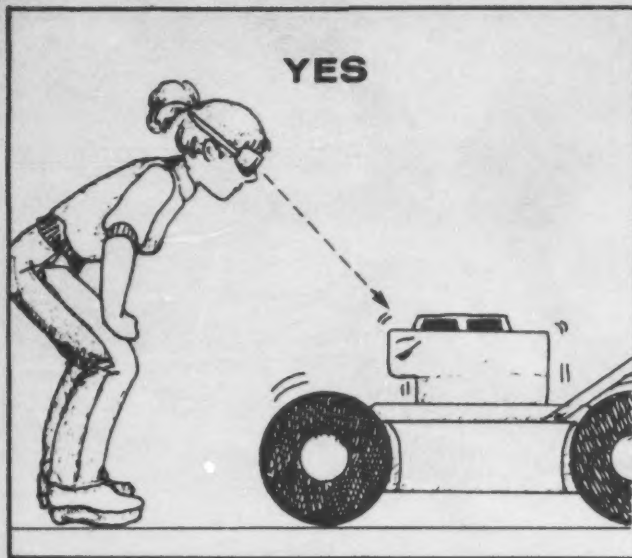
YES



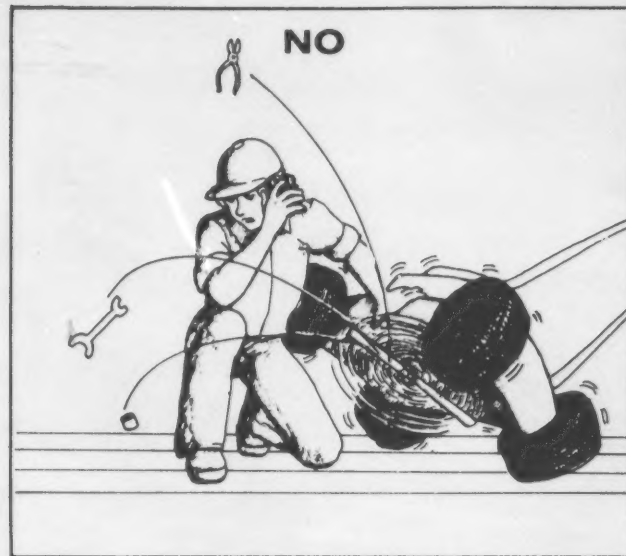
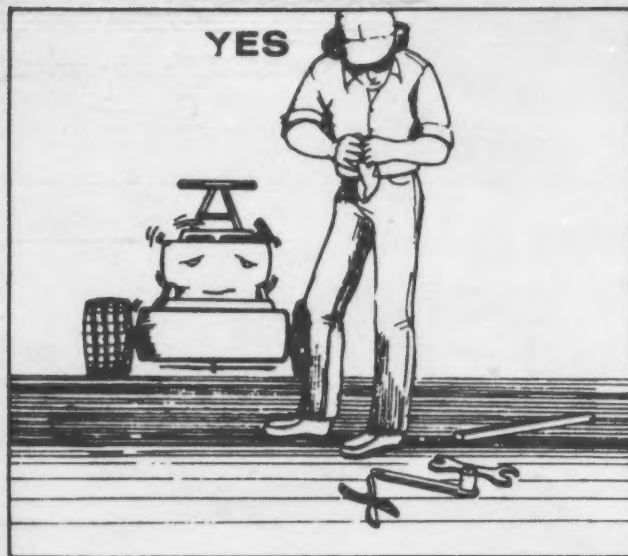
NO



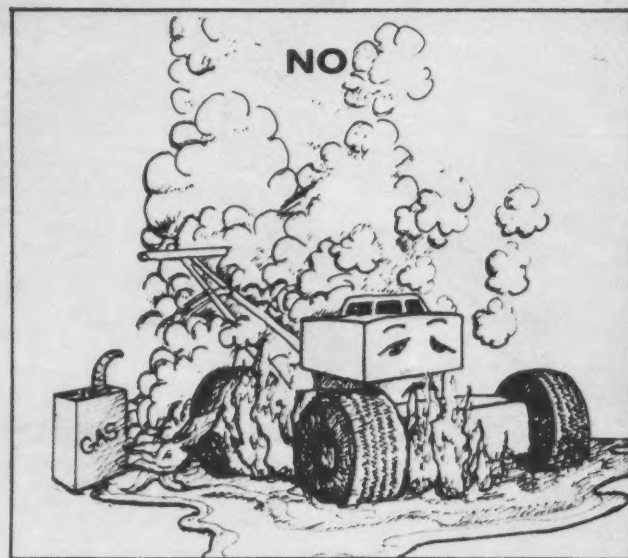
5. Always remove the spark plug before working on the engine so the engine will not accidentally start.



6. If you start up an engine, do not leave it alone until you stop it. An engine that is not carefully watched may get out of control and cause an injury to someone or damage property.



7. While an engine is running, never lift up the lawnmower and keep tools, hands, and feet away from the lawnmower blades.



8. Immediately wash away any gasoline that spills on the shop floor with water.
A fire can easily be started around spilled gasoline and running engines.



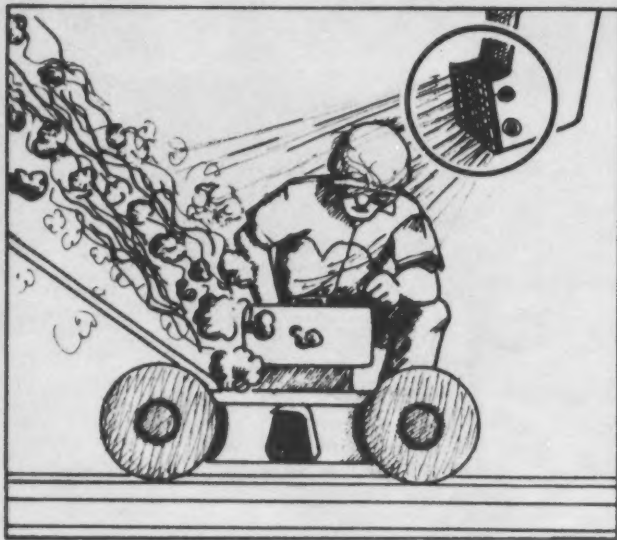
9. When cleaning engine parts, like the crankcase breather, use soap and water. Never use gasoline for cleaning because it is a serious fire hazard.



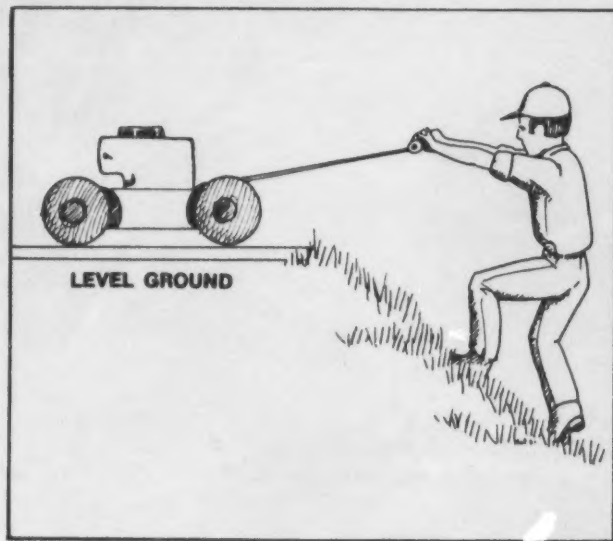
10. When using an air hose, remember to wear your safety glasses. Dirt could get in your eyes and hurt them.

HOW MUCH DO YOU REMEMBER?

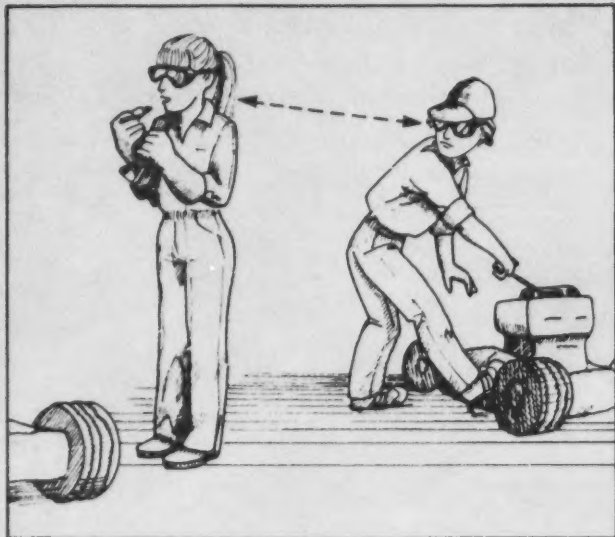
In each of the pictures below, tell what safety rule should be followed.



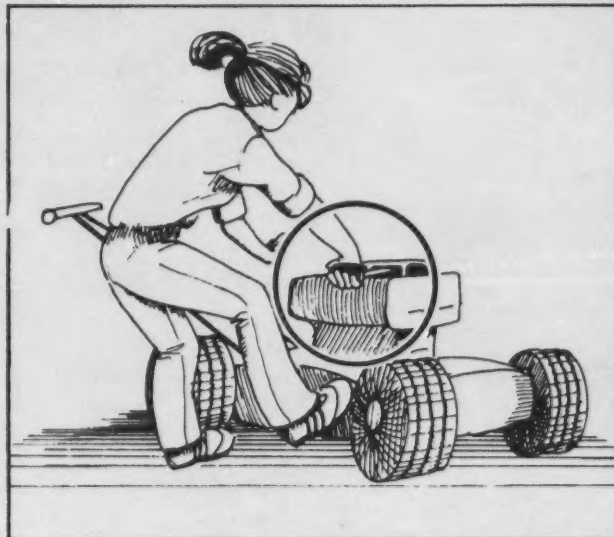
1. _____



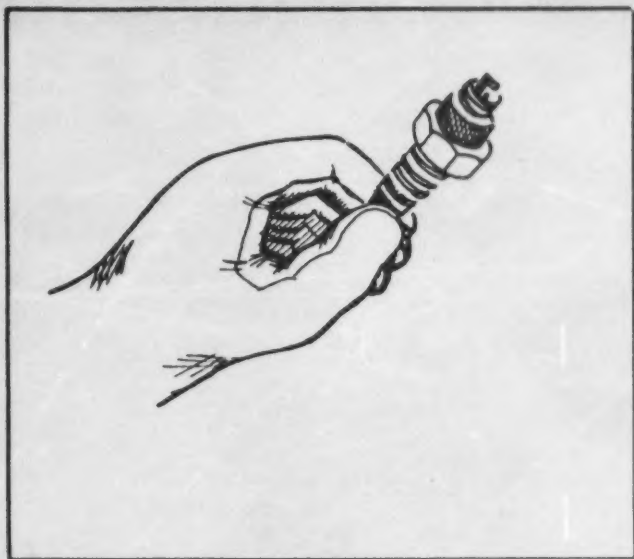
2. _____



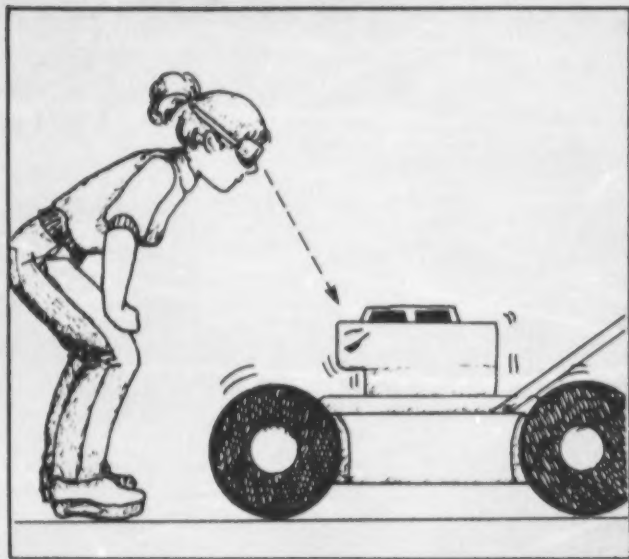
4. _____



3. _____



5. _____



6. _____



7. _____



8. _____



9. _____

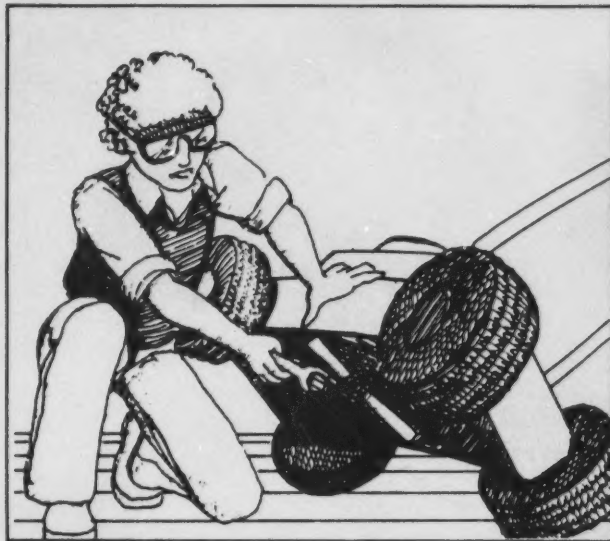


10. _____

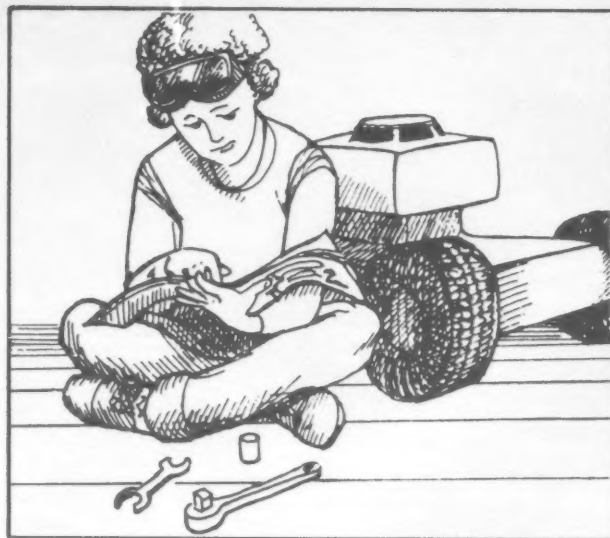
GOOD WORK HABITS TO FOLLOW

1. Follow your teacher's instructions.
2. Wear well-fitting clothes that are not loose and baggy. Take off all jewelry. These can catch in moving parts of the engine.
3. Do what you say you will do. In other words, be reliable.
4. Use tools correctly and safely.
5. Discuss any problems that you have instead of arguing or fighting.

"This student is using tools correctly and safely."



6. Stay on your job instead of horse playing in the shop.
7. Check your work for errors and try to correct them.
8. When you finish a job, clean the tools and work area, and return tools to the tool room.
9. Walk instead of run in the shop.
10. Be friendly, helpful, and honest.



"This student is checking her work for errors."

HOW MUCH DO YOU REMEMBER?

A. Circle the correct answer.

1. Following your teacher's instructions means you:
 - a. do what your teacher tells you to do and then try to finish the job without knowing how to do it.
 - b. try to take short cuts and get the job done quicker.
 - c. do exactly what your teacher tells you to do and no more.

2. When working on an engine, you should not wear jewelry or baggy clothes because:
 - a. they are uncomfortable.
 - b. they might get caught in moving parts of the engine.
 - c. they don't look good.

3. Being reliable means:
 - a. doing what you say you will do.
 - b. being smart.
 - c. being rough and tough.

4. Using a tool incorrectly and unsafely could:
 - a. help you finish a job more quickly.
 - b. not hurt the engine, tool, or mechanic.
 - c. break the engine or tool, or hurt the mechanic.

5. When another student is using a tool that you need and the student does not want to lend it to you, you should:
 - a. hit the student in the nose.
 - b. quietly tell the student that you will need the tool for only a few minutes and that you will then give it back.
 - c. argue and accuse the student of being selfish.

6. Horseplaying in the shop is when you:
 - a. leave your job and go have fun with other students.
 - b. stay on your job and ignore other students who are laughing and running around.
 - c. clean up your work area and put tools back in the tool room.

7. If you check your work for errors and try to correct them, then you are:
 - a. wasting time.
 - b. being sloppy and not paying attention to your work.
 - c. trying to do a good job by looking for mistakes and then doing the job right.

8. When you finish a job, you should:
 - a. go horseplay.
 - b. clean the tools and work area, and return tools to the tool room.
 - c. clean your work area, but leave the tools out for someone else.

9. While in the shop, you should walk instead of run because:
- a. it makes your teacher nervous when you run.
 - b. you could hurt yourself or someone else or break something.
 - c. you should always hurry, so it's okay to run in the shop.

10. A small engine mechanic should try to:
- a. be friendly, helpful, and honest.
 - b. tell a lot of jokes.
 - c. put a wrench in a pocket and then forget to return it to the tool room.

- B. In your class, read each of the 10 good work habits. Tell what might happen if these work habits are not followed. Think of other good work habits that you and your class would like to follow.

CAN YOU FOLLOW SAFETY AND GOOD WORK HABITS?

As you learn the jobs on the lubrication system, have your teacher help you rate how well you follow safety and good work habits. Use this rating scale and chart for 2 weeks and watch your progress.

RATING

MEANING

- 1** = Does not do the safety or work habit
- 2** = Sometimes does the safety or work habit, but needs to be reminded
- 3** = Does the safety or work habit most of the time

SAFETY AND GOOD WORK HABITS	DAYS									
	1	2	3	4	5	6	7	8	9	10
1. Before starting engine, moves it to well-ventilated area										
2. Before starting engine, sees that it is on level ground										
3. Before pulling the starter rope, looks behind to see that nothing is in the way										
4. When cranking the engine, puts one foot on lawnmower										
5. Removes spark plug before work- ing on engine										
6. Does not leave running engine alone										

SAFETY AND GOOD WORK HABITS	DAYS									
	1	2	3	4	5	6	7	8	9	10
7. When engine is running, does not lift up lawnmower, and keeps tools, hands, and feet away from blades										
8. Washes away any spilled gasoline										
9. Does not use gasoline for cleaning engine parts										
10. Wears safety glasses when using air hose										
11. Follows the teacher's instructions										
12. Wears well-fitting clothes										

SAFETY AND GOOD WORK HABITS	DAYS									
	1	2	3	4	5	6	7	8	9	10
13. Is reliable										
14. Uses tools correctly and safely										
15. Discusses problems instead of arguing or fighting										
16. Stays on job										
17. Checks work for errors and cor- rects them										
18. Cleans tools and work area and returns tools to tool room										
19. Walks instead of running										
20. Is friendly, helpful, and honest										